1.Here I create index on the device status table “network\_devices” ,taking device status’s data usage column and network column and from device\_location table we create index as “room\_code” taking longitude and room\_name column. I choose this columns from two tables because they have important values, and it I bound them in one index then it will be much more simple to fetch data from the table but it will not be so much effective for small data sets. Here we create index just for faster data fetching from the database table, if this database table will contain more than 10000 records and we have to fetch two or three data from the table then it will be faster than before .

1. **SQL query for network\_devices index:**

create INDEX network\_devices on device\_status (data\_uasge, network);

**screenshot**

Graphical user interface, text, application, email

Description automatically generated

**SQL query for room\_code index:**

CREATE index room\_code on device\_location(longitude,room\_name);

**screenshot**

Graphical user interface, text, application

Description automatically generated

Graphical user interface, application

Description automatically generated

1. **Performance improvement:** Indexes are objects in Mysql and other databases that store reference to data in plenty of other tables. They are most commonly utilized to increase query performance, namely the SELECT command.We can see an index  will utilize in the final step. It indicates that only a Full Scan will performed on the index, and the one we just generated. It will improve the run time , Like previously said, actual searches will be more complex than index one and will take longer to perform. However indexing may enhance both query plan as well as run time.
2. The Construct VIEW command is used to build database views. Views could be constructed using a single table, several tables, or an existing view.

A member should have the required system privileges for such specific implementation in order to generate a view.

**SQL query:**

**This is a view as device\_details**

CREATE VIEW device\_details AS

SELECT device\_control.dis\_id, device\_control.devices,device\_control.power\_consumtions, device\_status.data\_uasge, device\_status.network

FROM device\_control, device\_status

WHERE device\_control.dis\_id = device\_status.dis\_id

AND device\_status.device\_status ="ON"

Screenshot:

Select \* from device\_details

**SQL query:**

**2nd view is Room\_network:**

CREATE VIEW Room\_network AS

SELECT device\_control.location, device\_control.power\_consumtions, device\_location.longitude,device\_location.room\_name

FROM device\_control,device\_location

WHERE device\_control.location = device\_location.location

* **Screenshot for device details view:**

Graphical user interface, application, Teams

Description automatically generated

* **Screenshot for Room network view:**

Graphical user interface, text, application, email

Description automatically generated

* In this home automation database has three tables so if we use view command and create sub table like where some data from specified table will be placed like here I create device details view where I join two tables records and save them on a condition of device\_status.device\_status ="ON" so that a sub table was created and stored the values , in the second case also I join two tables and create a view named room network where some details of two different tables are stored , now it is very easy if we fetch view then we will see all the records .
* A view is utilized in the database for security considerations and serves as a bridge between the design of real tables and automation. It also prevents the user from examining individual rows and columns; Views typically reflect bespoke output which is indicated in the query and delivers the data that was defined inside the queries at the time it was created.
* When a View views or enters data into the database, the DBMS checks the data in order to ensure that it matches the given integrity requirements.so views helps the data analysis to track records of each data easily and Views guard against illegal data access. Your database administrator (DBA) can create roles to represent various user groups, and then award membership in one or more roles to any user account.